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ABSTRACT

A school construction guide offers key personnel in school development projects information on the complex task of master planning and construction of schools in Australia. This chapter of the guide provides advice on how to set up a master planning team and establish a plan for quickly completing the building process. It provides an overview of the planning process, discusses the skills required in the planning team, explores task assignments and time allocation for each, examines how to set key targets, and reviews value management and life-cycle costing. Specific topics address such areas as the business plan development, building access, financial planning, and school and community consultation. Illustrations outlining the planning processes are included. (GR)

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School Buildings

Planning, Design and Construction

John H Odell FRAIA ASIAC
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DEVELOPING A MASTER PLAN FOR YOUR SCHOOL

1

Ray Whitfield

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School Buildings - Planning, Design and Construction

A Guide Document

for School Councils, Boards and Committees, School Principals and Staff and Construction Professionals

Introduction to

School Buildings – Planning, Design and Construction

Good school buildings do not just happen. Thought and consideration must be given to the needs of the users of the building and to the available resources. The persons responsible for building the school should have considerable experience or draw on the advice of those who have.

For a building to be satisfying and successful it must provide shelter, have durable construction and finishes, be aesthetically pleasing and appropriate to its use. A well-planned school will incorporate the following points:

- buildings and grounds will satisfy and support both short and long-term requirements
- curriculum demands including requirements for registration by authorities will be met
- site development will not be haphazard and each project will pave the way for the next
- building design will be flexible to cater for as yet unknown future requirements
- building will be cost effective - and in the long term the school will avoid unnecessary expensive recovery action
- good building design will encourage a high quality educational environment
- pre-planning of maintenance requirements will assist in reducing operating costs

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School Buildings, Planning Design and Construction is presented in a ring binder with 8 booklets. The document is available only as a complete set

1 Introduction and Chapter 1 – Developing a Master Plan

2 Chapter 2 – Making the Most of Your School Site

3 Chapter 3 – Principles of Good School Building Design

4 Chapter 4 – Purpose Designed Facilities

5 Chapter 5 – Construction Methods and Materials

6 Chapter 6 – Managing the Construction Process

7 Chapters 7 and 8 – Technology and Managing Buildings

8 Appendices

ISBN 0 646 23758 6 refers to the complete set of 8 booklets

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John Odell is currently a consultant to the Association of Independent Schools of NSW Ltd through which he is available to schools throughout Australia and elsewhere.

AUTHOR'S ACKNOWLEDGMENTS

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The author also gladly acknowledges assistance received from individual schools and from the Catholic BGAs in NSW and in Queensland and in particular AIS offices in Victoria, Queensland and New South Wales.

Appreciation is expressed to Clarke Hopkins and Clarke, Architects in Victoria for their permission to use the drawing of Warrandyte High School as part of the cover design.

My most profound appreciation goes to my wife Robin and our family for their patient endurance during the many absences from home and from family made necessary by the assembling of data, writing and re-writing of what follows.

John H Odell

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This guide is designed to assist key personnel in school development projects with the complex task of master planning and construction of schools.

Individual chapters in this guide may be distributed to relevant key personnel as appropriate to their specific interest and responsibility.

Each chapter is a separate booklet with chapters 7 and 8 bound together in one booklet and chapter 9 in booklet 8.

The chapters:

1 Developing a Master Plan for Your School
2 Making the Most of Your School Site
3 Principles of Good School Building Design
4 Purpose Designed Facilities
5 Construction Methods and Materials
6 Managing the Construction Process
7 Technology and Educational Buildings
8 Managing School Buildings
9 Appendices

This Guide aims to:

- demonstrate the necessity for school communities to produce comprehensive master plans for the development of their school
- encourage school staff and boards to be involved in the development of school facilities and to draw on the wider experience of the community during that process
- outline planning processes and techniques that will lead to greater creativity in school design with greater efficiencies and productivity in the construction process
- help school staff and board members in their dealings with professionals in the building industry, and vice versa
- encourage excellence in school facilities
- maximise potential of limited resources to achieve desirable outcomes
- provide advice on how to determine whether a particular facility is vital to a school
- provide examples of excellence in school building and planning
- provide a comprehensive list of contacts, resources and references.

Who should read this Guide:

- All school council/board members
- Principals, bursars and other key staff members
- All members of school building and planning committees
- Administrators in control of school building projects
- Construction industry professionals, especially school architects

Developing a Master Plan for Your School

1. Developing a Master Plan for your School

This chapter will assist those responsible for developing school buildings and grounds to set up a Master Planning Team and to establish a plan for completing the process in the fastest possible time.

This chapter will cover the following aspects of the planning process:

Definition of Master Planning (1.1)

- An overview of the planning process (1.2)
- The skills required in the Planning Team (1.3)
- Assigning the tasks (1.4)
- Allowing Adequate Time (1.5)
- Setting Key Targets (1.6)
- Value Management (1.7)
- Life-cycle costing (1.8)

WHAT DO WE DO NOW?

1.1. Definition of master planning

Master planning is a process by which an overall plan for the physical environment of a school, buildings and site is developed and reviewed. Master plans contain drawings as well as schedules showing the proposed time of commencement and completion of the various stages of a school's development.

> *....Master Planning - a process by which the physical environment of the school is planned and reviewed....*

Master plans are not static - they need to respond to changing requirements and should be regularly updated.

Both the educational program and business needs of a school should be taken into account in the development of a Master Plan.

Master planning is a process aimed at encouraging school planning authorities to undertake a careful and detailed examination of all the factors involved in planning building and managing a school. Poor planning leads to the development of inadequate facilities, a poorly planned site or expensive recovery programs for the school a few years later.

1.2. An Overview of the Planning Process

There are three basic steps in the Strategic Plan for the preparation of a Master Plan:

1 The Vision Phase

2 The Information gathering phase - see "Prerequisites for Master Planning" in the diagram which follows.

3 The Planning Phase.

1.2.1. The Vision Phase

The purpose of the vision phase is to identify the motivation for commencing and continuing to operate the school and to clearly state its underlying philosophy. Developing a master plan without a clear understanding of the school's vision often leads to a building that poorly meets the needs of the school.

Those who established the school did have a vision, however well it may have been stated. It may be documented in your school's history, perhaps illustrated in the library memorabilia cabinet, or simply told in the traditions of the school. This vision or philosophy may or may not be continuing to guide the development of the school.

The vision inevitably evolves as the years progress. The master planning team should understand that vision and know how the school's philosophical position has affected the building program to date.

If a school continues to occupy the original buildings associated with the early days of its development, the very fabric of the school will reflect that vision.

A school designed initially in a certain style (reflecting philosophy or a particular educational need), should maintain that style wherever possible throughout its latter stages of development so that the ongoing development is coherent and has continuity with the original design and culture.

The vision will often be set down in a mission statement. This should be a general and succinct statement of purpose and philosophy of the school, expressed in terms understood by all participants in the school community. It should not be couched in educational jargon.

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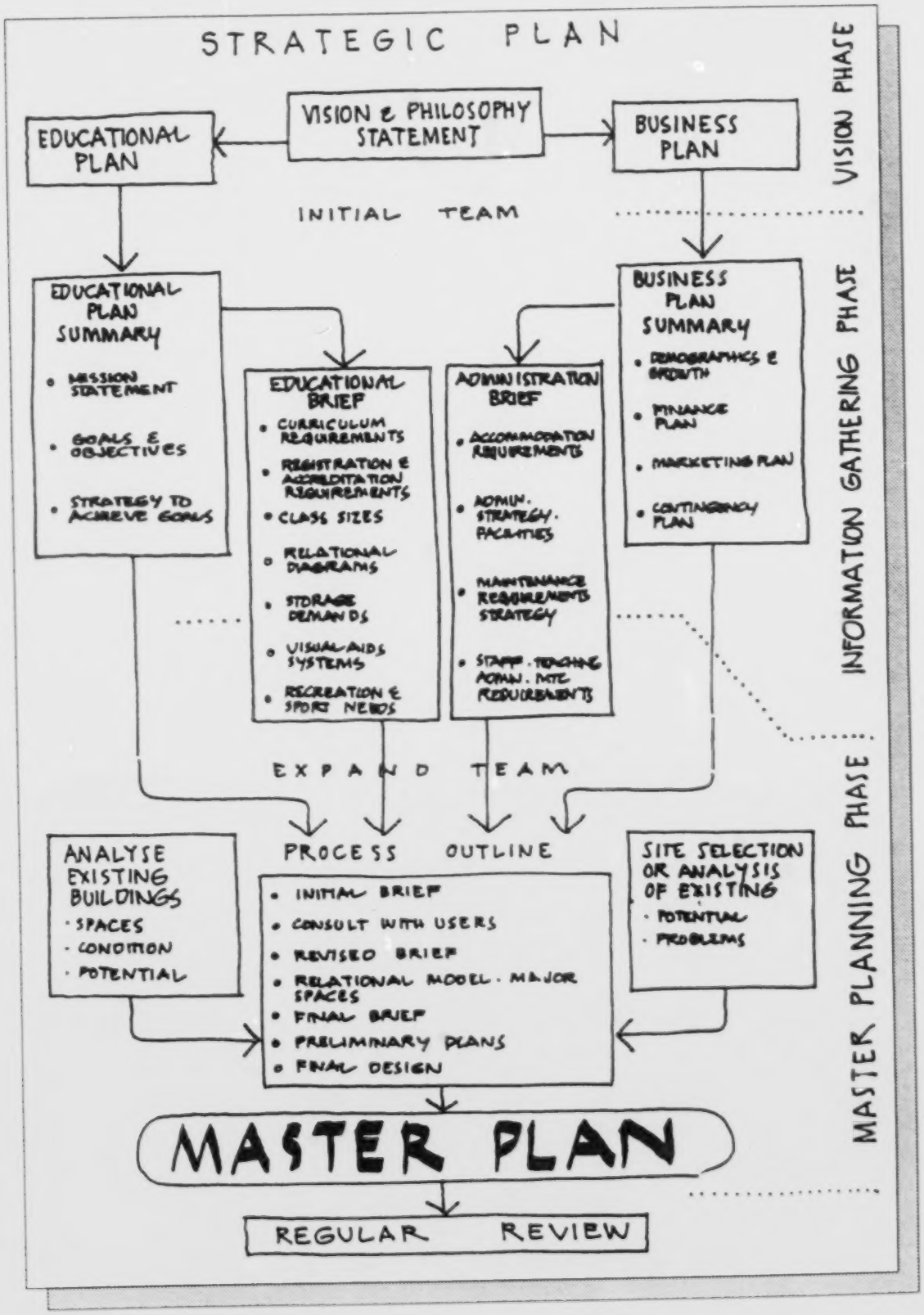

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The vision statement may well continue to be refined while the other phases are unfolding.

1.2.2. Prerequisites for master planning

Before any development is contemplated there are two very important prerequisites. Some school funding bodies recommend, if not insist, that these be in place at the time of considering a capital grant application. These are an Educational Plan and a Business Plan.

Educational Plan

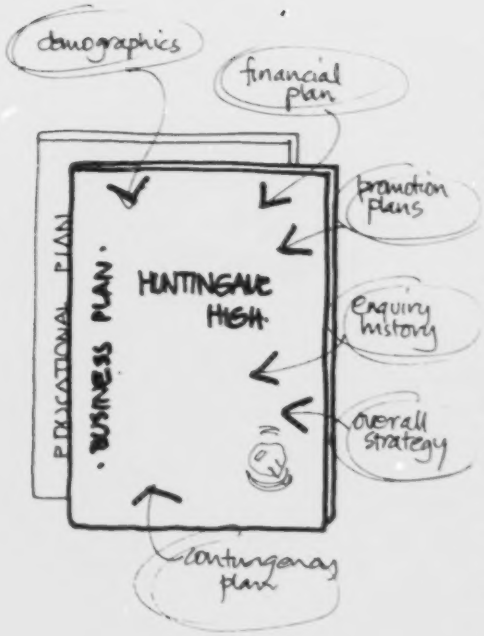
The educational plan is a document or series of documents which sets out the philosophy of the school, its aims and objectives and the educational strategy to be adopted to achieve those aims and objectives. It will have a significant bearing on the whole approach to development of the school's facilities.

The primary focus of this plan is to guide the educational staff in the development of the school's educational program. It will be prepared by the educational staff of the school or, if the staff has not been appointed, those of the founding body who have expertise in this area. As it is one of the most important documents of the school it will have, or should have the endorsement of the school council.

If there is no such document, the master planning team should urge the school board or council to produce one prior to the commencement of the planning process. The information may already be in existence but may not be called an "Educational Plan".

A sample summary of the issues that could be contained in an Educational Plan is in Appendix 9.1. The summary covers:

- School Philosophy
- School Aims and Objectives
- Educational Strategy



Business Plan

The purpose of the Business Plan is to provide an overview of the school's proposed strategy and, most importantly, to guide the administrative staff and educational leaders in ensuring the school's financial viability. It will be guided by the educational plan and will also incorporate demographics, funding sources and marketing. Briefly, it includes:

- demographics
- enquiry history
- financial plan
- promotional plan
- overall strategy
- contingency plan

At the minimum, it must address the issue of financial viability. The Business Plan is summarised in Appendix 9.1.

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ENROLMENT PREDICTION

ENROLMENT PREDICTION

Population prediction

When planning a school facility, it is vital to have information on the demography of the school's catchment are. Information needed will include:

- age structure
- population prediction, local government sources as well as Australian Bureau of Statistics
- birth rate and number of births
- residential density and development pattern
- government and non-government school enrolments
- transport in the area
- local government sources of information
- DEET ceilings on school enrolments, if any

These figures provide the basic information for predicting school population and the demand for facilities. the demand will be further affected by:

- enrolment of students not resident in the catchment area
- pattern of student retention
- changing of land use patterns (re-zoning)
- the socio-economic level of the community
- the inclination of the community to use non-government schools

1.2.3. Information Gathering Phase

The purpose of this phase is to gather the information needed for the team to commence planning. The team should defer any decision making related to planning until certain essential data is obtained (although the data will be augmented as the plan unfolds and develops). The following is a summary of essential components:

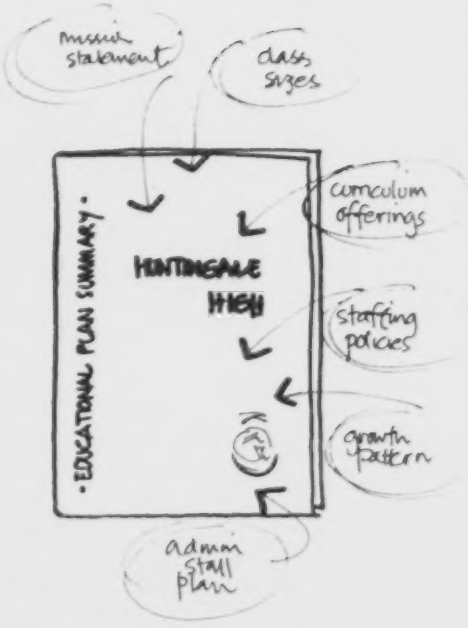
- Educational Plan Summary
- Educational Building Brief
- Administration Brief
- Business Plan Summary

The suggested content of these documents is summarised below.

Educational Plan Summary

The Planning Team will need to have a condensed version or summary of the Educational Plan. The best people to prepare this are the educational staff who will, no doubt, have prepared or at least had a significant input into its preparation.

The purpose of this summary is to isolate the key elements of the educational plan that directly and specifically affect the building program. The planning team will need this information to properly understand the nature of the facilities to be provided.



The essential elements of the Summary of the Educational Plan will be:

- School Philosophy, summarised in a Mission Statement relevant to the particular project - refer to Education Plan in Appendix 9.1
- School aims and objectives as are relevant to the project in hand and condensed into a set of specific goals and objectives. The following is a guide to what these may be:
  - ✓ ultimate school size including class sizes
  - ✓ the students to be enrolled (boys, girls or co-ed) and age range
  - ✓ curriculum offerings
  - ✓ staffing policies
- Strategy to achieve Goals and Objectives
  - ✓ growth pattern of enrolment
  - ✓ plan for introduction of various curriculum offerings
  - ✓ plan for growth of administration staff in parallel with growth of school
  - ✓ plan for introduction of general purpose areas such as libraries and multi-purpose halls.

Educational Building Brief

The Educational Building Brief specifies the space needs of the school. It will provide a list of spaces, specific requirements of those spaces as well as the overall sizes. It will require considerable

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time input to achieve a satisfactory brief. For the benefit of those outside the education profession, it should state clearly the needs of the school. This has two principle benefits:

- it requires the school staff to be specific and therefore to think carefully about what is being documented
- it leaves few questions in the minds of the people charged with the responsibility of preparing the design.

The master planning team would benefit from critically analysing the existing facilities and visiting other similar schools to ensure that the proposed new facilities are suitable for the perceived purpose.

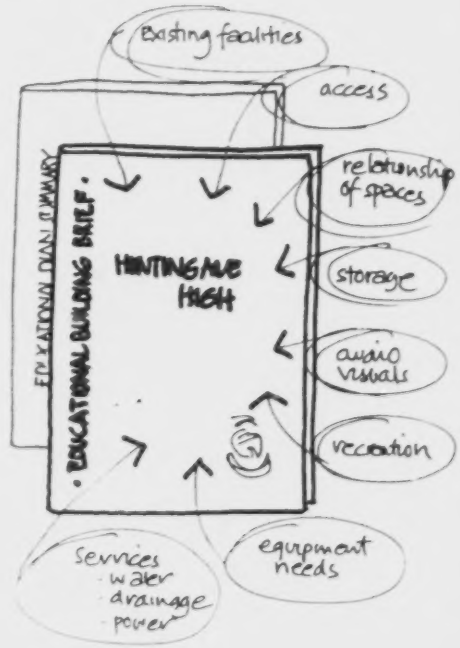
The principal design consultant (usually an architect) can assist in this process in consultation with educational professionals.

Existing facilities

Before preparing the Educational Building Brief careful and detailed study should be undertaken of existing facilities with a view to documenting whether:

- it is structurally sound
- it is a healthy and safe environment, well ventilated and free from hazards
- it is efficient to operate
- it supports the school program
- its location is convenient for the users
- the space is optimally used
- it is the right size
- it can be modified
- its acoustics (sound ingress, reverberation level) are satisfactory
- the lighting, both natural and artificial, is satisfactory (e.g. no glare from windows)
- there is adequate display space
- there are adequate storage facilities
- all spaces are accessible to users (e.g. are people with disabilities able to move freely to all areas?)
- finishes are durable
- the building is well maintained
- the building is lacking in aesthetic appeal

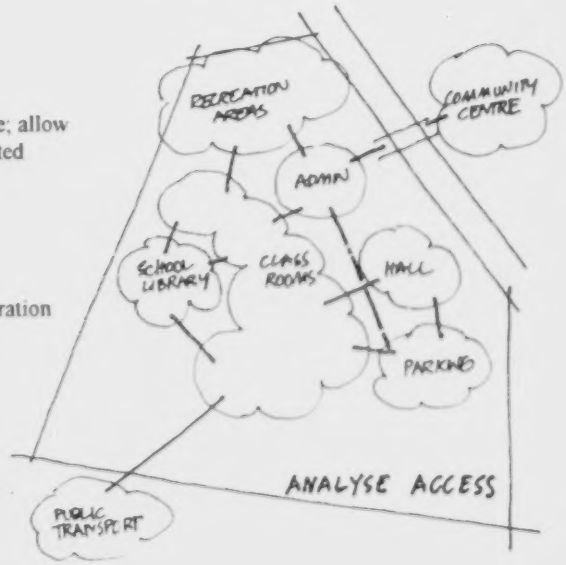
The users should highlight only the deficiencies at this stage; allow a range of options to be explored by the designers. Unexpected solutions often emerge.



Access

The Educational Building Brief will require careful consideration of the following access issues:

- student access to site
- student movement patterns within the site



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- vehicle access to site (special consideration should be given to bus access)
- vehicle movement on site (e.g. deliveries)
- positioning of staff rooms vis a vis classrooms

To establish space needs, planners must give careful consideration to:

- how staff will be accommodated e.g. centralised or distributed staff rooms, whether staff teach across all grades or are limited to specific segments of the enrolment
- needs of the curriculum - specialist facilities that are required
- facilities needed to satisfy registration and accreditation requirements
- the relationship of spaces to each other
- services (water, power, light and gas) requirements
- class room sizes and use (normal classroom, seminar - lecture - demonstration - practical)
- storage requirements
- audio visual facilities, chalkboard, whiteboard, overhead projectors, television/video facilities, display areas
- active and passive recreation
- sporting facilities and ground requirements, school and community use
- changing national demands for curriculum and training

Adjustable display shelving and pin up space

This list will expand as the planning group refines its proposals. The planning group will need to make submissions to the school authority from time to time to try out ideas and to receive feedback – a process that will often raise further questions. The responses to these questions provide important clues to the final shape and pattern of development of the school.

In addition to the above, the planning team must consider the requirements of Commonwealth and State government funding programs, if such funding is sought. An overview of these programs can be found in Appendix 9.8.

Further details regarding these programs can be obtained from the *Commonwealth Programs for Schools - Administrative Guidelines* published annually by the Department of Employment Education and Training (DEET) and from state education funding bodies. The Block Grants Authorities (BGAs) will also be able to provide useful information. Details on these bodies are in Appendix 9.3.

Administration Building Brief

In addition to the educational staff space requirements, the needs of administrative staff must be established. They include:

- accommodation requirements and standards
- administration staff facilities - centralised or dispersed
- maintenance facilities

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- whether maintenance staff will be employed directly or by subcontract
- machinery, workshop
- low initial cost (high maintenance) or high initial cost (low maintenance) - decision required.

Business Plan Summary

The Business Plan Summary will include:

- demographics and growth
- financial plan
- marketing plan
- contingency plan

These points incorporate rates of growth, planned school size, curriculum requirements, staff requirements, projected budget surpluses and availability for debt servicing, projected debt levels and control, bank lending policy, expected government assistance for capital development (grants and subsidies) and an assessment of the fund raising capacity of the school. This information will have a direct impact on the school's facilities planning.

Similarly the projected costs of planned buildings will have a direct impact on business plans. For example, fee levels may need to be increased or the appointment of certain staff members delayed in order to finance buildings crucial to registration requirements. Cost is related to both the numbers and type of buildings required.

The planning team may also be constrained by financial considerations and thus may need to modify existing plans. For example, some buildings not required for registration purposes may be delayed to later stages; or specific-purpose facilities may have to be used temporarily for general purposes.

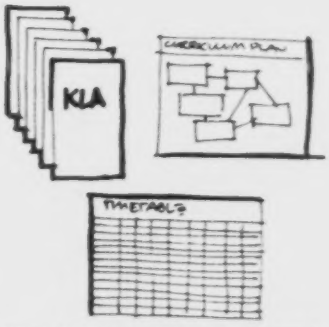
The business plan will undergo various changes as the master plan evolves. For example, as building professionals provide cost inputs, the rate at which the project develops may need to be adjusted accordingly; or as demographic information emerges, a change in emphasis, say, on different age groups, may be required.

1.2.4. The Planning Phase

The Planning Phase is best described as four distinct activities:

- Assembling the team - the people with relevant and varied skills who will comprise the planning team (refer 1.3)
- Assigning the tasks - delegating responsibilities to the various members of the team (refer 1.4)
- Program of meetings - preparing a program with adequate time to complete the various tasks while maintaining enthusiasm and drive (refer Scheduling Time 1.5)
- Setting key targets - establishing important milestones (refer "Setting Key Targets" 1.6)

FINANCIAL PLANNING



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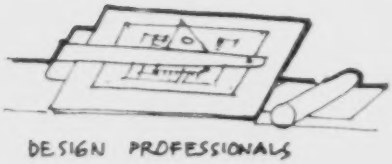
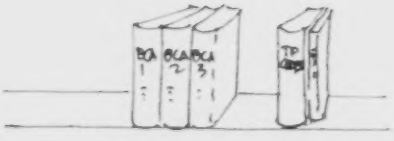
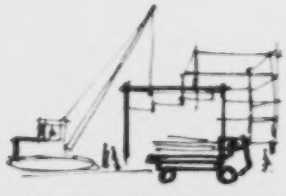


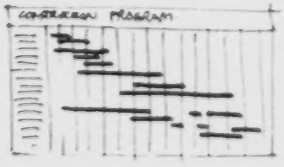
DESIGN PROFESSIONALS



PLANNING PROFESSIONALS



CONSTRUCTION PROFESSIONALS



CONSTRUCTION PLANNING

In addition to the above at various stages the team should agree that reviews will take place.

- Review process - establishing a series of review processes, preferably involving people outside the team who have relevant expertise.

The planning process is much the same, whether the project is for the development of an entire master plan or for a specific project.

1.3. Assembling the Team - the skills required by the team

To carry out its work effectively, the planning committee will require members with a variety of skills and experience. The various user groups should also be represented on the committee. In this way, the design intent and outcome can be conveyed to the users (mainly the school staff). Greater commitment and a sense of ownership by the teaching professionals will result from their involvement in the planning process.

The school should aim to include the following qualities and experience on the team:

- school council and management (1.3.1)
- educational leadership and administration and curriculum development (1.3.2)
- building design, construction experience and town planning (1.3.3)
- financial planning (1.3.4)
- discussion leading (1.3.5)
- secretarial skills (1.3.6)

This list is developed below in more detail.

1.3.1. School council and management representation

The master planning team should incorporate representatives from both the "owner" (the school council - the policy makers) and "management" (the school principal and staff - the executive).

The primary task of the school council representatives is to inspire and oversee the maintenance of the vision. The key person in this process will be the Principal who should bear the responsibility of conveying to the staff the policy of the Board or Council.

The primary task of the school staff including the principal and business manager/bursar is to ensure that detail requirements are incorporated, and that the end result will satisfy the current as well as future needs of the school.

Prior to the project taking shape there must be general agreement as to vision and general educational approach. It should be understood that in trying to reach agreement the process will become quite intense and will, at times, test the best working relationships.

This is a time for the board or school council chairman and school principal to agree as to how conflict will be resolved. Policies and strategies for conflict resolution should be in place beforehand.

1.3.2. Experience in education, curriculum development and education administration

Try to ensure that representation on the planning team is obtained from the following areas:

- all levels of teaching (Primary and Secondary)
- educational specialists (e.g. library, technology)
- curriculum planning
- educational administration

1.3.3. Experience in building design, construction and town planning

Professionals such as the following should be on, or readily accessible to, the team:

- Architects

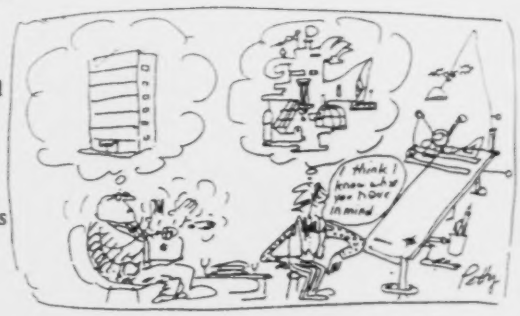
Architects are usually well equipped to assist in developing a brief and in engaging other consultants.

New schools operating with limited budgets should avoid the temptation to plan alone even with the assistance of a "friendly builder". Significant skills are required for master planning and these are not normally the skills relevant to the construction process - the domain of the builder.

By employing consultants at an early stage, their advice can provide input and help in the resolution of issues, often overlooked by school management teams who are rarely experienced in such matters.

It is wise to engage architects with experience in educational facilities - advice at preliminary stages is usually available gratis as it gives an opportunity for the professional to establish a link to a possible client.

On the other hand a fresh and inspiring approach can sometimes emerge when the consultant is not burdened by ready made solutions which can result in repetetive and uninspiring designs.



Use architects who are creative but who also communicate clearly.

Cartoon by Bruce Petty
Used by permission - Appreciation to the NSW Chapter of the Royal Australian Institute

- Builders

Building contractors with experience in projects of a similar size to the planned facility are best equipped to bring appropriate advice. Trades experience without the experience of major contract management is of limited benefit.

- Construction management

There is a range of approaches to contracting the construction work and schools are attempting more and more to undertake work other than by the traditional tender process. In these cases it is important to use professionally qualified and experienced personnel.

Construction management is covered in detail in chapter 6.

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- Services and structural engineering consultants

Services include electrical, hydraulic (i.e. water supply and drainage, including stormwater and sewerage), mechanical (ventilation and air conditioning), security and fire. The advice of professionals in these areas can be helpful even prior to choosing a site (e.g. to assess whether a site where no sewer is available can be serviced by a rising sewer main).

- Quantity surveyors

Quantity surveyors and cost management consultants are usually used in conjunction with a multi-disciplined team of professionals to:

- provide advice at the preliminary design stage
- cost various options
- guide the project through to completion within budget.

Their task is to keep all, including the school, informed as to progress – not only at the various design stages but also through the construction stage. This permits adjustments where necessary and allows the monitoring of the cost of variations which are inevitable in any building project.

- Town planning

Town planners generally work for local council or are in private practice. They are concerned with the use of land and maximising its potential to suit the needs of the community. Their familiarity with planning codes and concepts is invaluable, particularly in choosing a site and in negotiations with the local authorities for approvals.

1.3.4. Financial planning

Accountants or professional business consultants with expertise in financial management and planning, lending policies and budgeting are a valuable asset in establishing long-term financial policies and strategies. Experience in educational financial planning is of particular value in making the most of the funding formulae in the school's financial plan.

1.3.5. Discussion leader and summarising skills

Without the skills of a competent discussion leader, team work could very quickly degenerate and founder because of a lack of direction and purpose. Similarly without good chairmanship one or two strong team members may tend to dominate, and overshadow valuable input from other team members.

These team leading skills are often available from those in an emerging profession called Value Managers. (Refer section 1.7).

1.3.6. Secretarial and administration skills

Records succinctly kept, filed, accessible, and approved are fundamental to the success of the team. Much time can be saved by having ready access to decisions and background data.

1.3.7. Other consultants

Block Grant Authorities (BGAs)

The BGAs usually comprise a panel of experienced professionals in the financial, educational, design and construction professions. These experts usually anticipate and welcome being consulted, and should be consulted early in the planning stage. However, experienced personnel associated with the BGA committees are not able to provide advice for sustained periods. Thus, depending on the size of the project envisaged, schools should consider appointing a panel of consultants.

A complete list of BGA contacts is provided in Appendix 9.3.

Other Schools

It is helpful to visit comparable schools as early as possible. Follow up that visit with specific and detailed discussions at the detail planning stage.

Association of Independent Schools (AIS) NSW - Consultancy Team

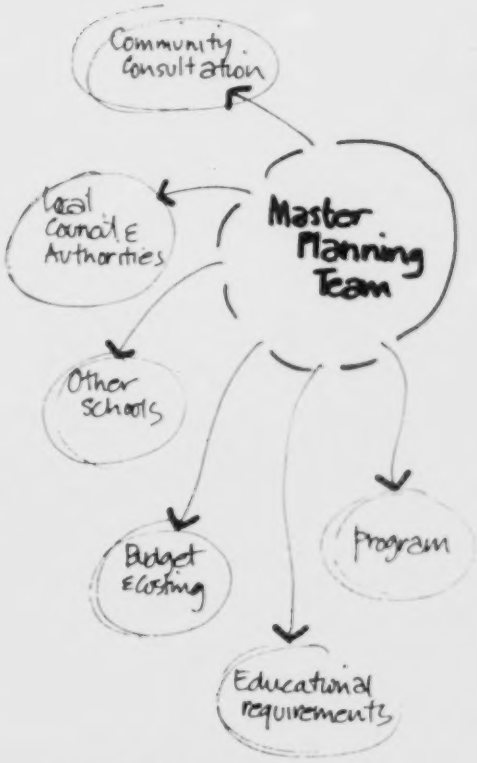
AIS NSW is establishing a panel of consultants with relevant expertise across all aspects of the educational planning process, including the provision of facilities planning. This advice is available to all schools, including non-member schools. The members of this panel provide their advice as independent consultants but through AIS NSW. There is usually a fee attached to the provision of such advice.

1.4. Assigning the Tasks

Once the team has been assembled specific tasks relevant to the various skills should be assigned to the appropriate team members. These will relate to gathering information and making contact with appropriate authorities. They will also need to prepare submissions for the planning team in respect of their area of expertise.

As the team is likely to be fairly large a number of sub-groups is recommended to incorporate representatives of school staff, professional and school community wherever possible.

This process of dividing up the work should be handled with care to avoid wasting time. When tasks are delegated it is wise to encourage the larger group to either receive or reject the advice. To spend a lot of time in the larger committee re-hashing what the sub-group has done is likely to discourage and bog-down the progress of the larger group.



ASSIGNING TASKS

1.5. School and Community Consultation

Staff

The process of consultation with staff is likely to be the most time consuming. The effort expended in this area, however, is repaid

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many times over if the detailed consideration and needs of the professional teaching staff are taken into account. The advantages are:

- the staff are encouraged to think in detail as to their requirements
- the planners develop a greater appreciation of the people for whom they are designing
- the staff develop a greater sense of ownership of the outcome. Even if the end result is deficient in some respects there will remain a greater sense of commitment to make the solution "work"

Parents

Depending on the kind of school, the degree of parent and community involvement will vary. This will depend on the expectations of parents as to the extent of involvement required or necessary.

Among interested parents, schools are likely to find people skilled in

- education
- the construction industry
- finance
- management
- promotion - advertising

Parents also tend to make up the membership of committees such as

- maintenance
- uniform/clothing pool
- canteen
- promotion

and play many other supporting roles within schools.

Such parents should be given the opportunity to have input into the planning process.

This can be done best by seeking submissions as to requirements and then reviewing these with the planning team to check the appropriateness of the response.

Company members

If the school is a company or an association, individuals within the membership may also be able to contribute. A school development is a major investment and members will be vitally interested.

At annual general meetings the major steps should be outlined and comments sought. A subcommittee of the council or board could be formed to keep the members advised of major developments.

Students

Both current and former students should be included in the planning process. At minimum, a representative from the past

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students or alumni association should be involved. The current senior student could also be invited to participate. The student council should be invited to make a submission.

This process of wide consultation develops a sense of ownership and involvement so that when the project is in use there will be a commitment to make it work.

Neighbours and community

Neighbours and community will have an interest in issues such as:

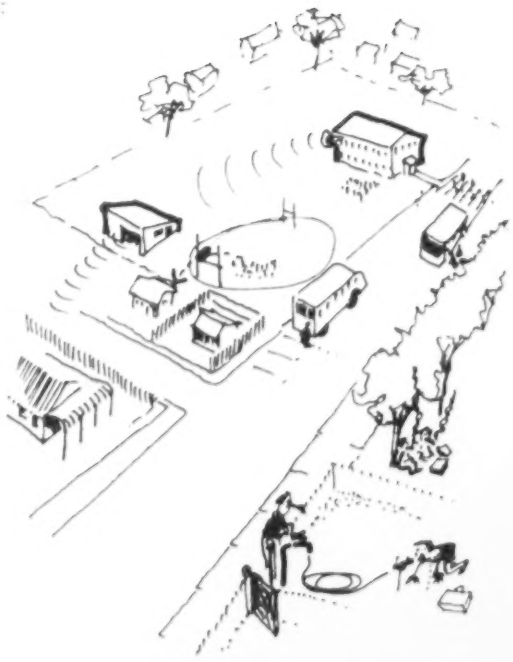
- vehicular traffic on roads
- noise generated by children at play
- after school hours activities
- disturbance by truant or misbehaved children
- machinery noise from workshops and from grounds maintenance
- impact on environment, e.g. increase in drainage from non-absorbent surfaces increasing run-off
- impact on services - change in water pressure
- impact on local bus and train services--increased usage, crowding.

On the other hand the school may be able to offer support to the community by providing access to:

- libraries
- workshops after hours for hobbies
- local interest groups
- adult education programs - e.g. computers
- sporting facilities, gymnasium

For these reasons it is important to seek the support of the local community at an early stage to determine the level of opposition and/or interest. Should the advantages be seen to somewhat offset the disadvantages, the opposition from the local community (which can affect council approval) can be minimised.

Time must be allocated for interviews, public awareness programs and consultations.



SCHOOL & NEIGHBOURHOOD
potential for conflict

1.5.1. Allow for consultation with relevant authorities

A wide range of authorities and government agencies affect the development program:

- Local municipal council
- State government educational authorities who regulate space and health issues including toilet accommodation
- State government interest subsidy schemes which may have space standards
- Commonwealth Government global guidelines
- Commonwealth Capital Grants programs as operated by BGA's may have other guidelines such as room counts
- Employment regulations, (provision of rest, food, first-aid and toilet accommodation)
- State Government planning regulations/zoning

- Water supply and drainage
- Electricity supply authority
- Gas supply authority
- Roads and traffic authority
- In certain areas special requirements may apply such as mining subsidence regulatory authorities

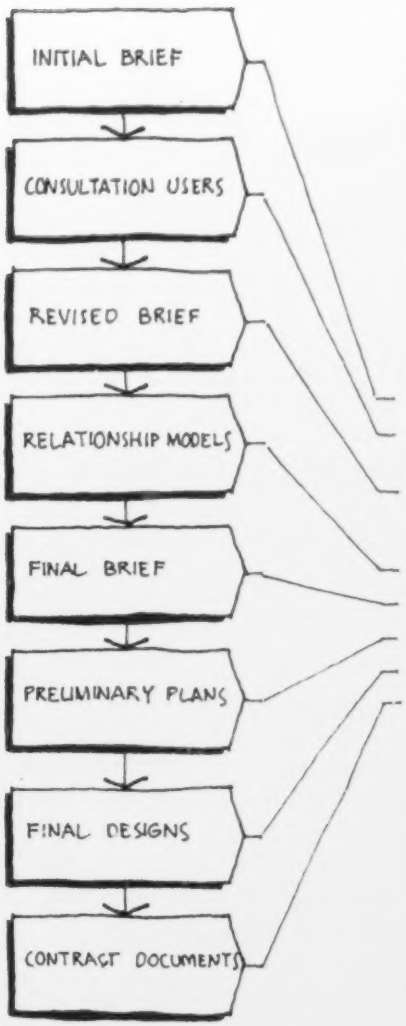
Adequate time and provision of relevant expertise needs to be allowed for in the planning process.

1.5.2. Allow for securing relevant approvals

In addition to allowing for consultation with the authorities it is also important to allow for securing of the necessary approvals.

Approvals cannot always be applied for concurrently – some approvals are contingent on others. For example before the local council grants approval, it may first require certain other authorities to provide input and grant approval, e.g. roads and traffic, water and sewerage.

This process can take months, particularly if there are legal disputes which must be settled in court.



1.6. Setting Key Targets

Key targets pertain to the specific objectives to be achieved, including all necessary approvals.

The key targets will vary according to the nature and complexity of the project. A sample outline is given below:

- initial brief based on "first cut" assessment of requirements.
- consultation with users including students, as well as staff, parents and community.
- revised brief.
- relationship models.
- final brief.
- preliminary plans.
- final design.
- contract documents.

Initial Brief

This will describe the school in broad terms, by stages, listing the number and kinds of class facilities required, enrolment numbers and staff, the external facilities such as play areas, administration requirements, access requirements to transport facilities.

Consultation

This process requires a series of meetings to draw together the various groups likely to be associated with the school. It provides opportunity for each to make suggestions and recommendations as

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to how the building should be equipped and laid out, the staging needed and the community use potential.

The information from these groups needs to be "filtered" by the school board before becoming information on which the planners are required to act in preparation of the design.

Revised Brief

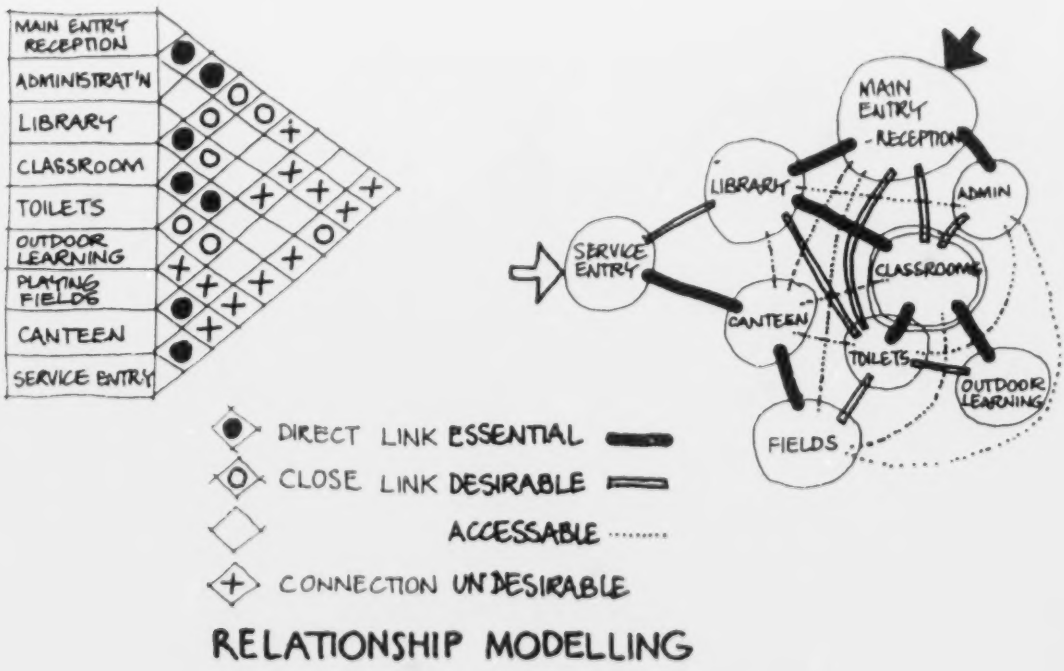
The revised brief will arise out of the "filtering" process referred to above. It may contain additional information prompted by the consultation process.

Relationship Models

In this phase the school senior staff begin to suggest priorities as to which rooms or areas best relate to one another, the areas that need to be isolated and those that to be in close proximity, (e.g. transport access, to playing fields and so on).

This process is probably best carried on in company with trained personnel who are skilled in consultative leadership and probably someone not close to the users (not on staff).

The output from this process is best illustrated in diagrammatic form. Any submissions making use of architectural plans except by way of illustration should not be included. The use of diagrams at this stage assists considerably in keeping thinking clear as to relationships that spaces have to each other. Detail relating to placement of windows and doors should be left to the architects and other construction professionals.



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Final Brief

The final brief will be developed from the resolution of the relationships model.

A master plan which will be developed from the final brief will contain the following documents:

- site plan
- buildings in general form (not detailed)
- stages of building/development program
- broad principles of landscape design including playing areas, fields, courts, major planting areas
- major circulation patterns
- general principles of vehicle movement and parking
- faculty relationships
- major service diagrams

Project Implementation: Once the master plan has been adopted and a specific project is proposed the process will move through the Preliminary Plan and Final Design stages.

Preliminary Plans

With the Final Brief the planner should be equipped to commence preparing preliminary plans.

Only approximate room sizes and plans in broad outline will be shown. It will be possible to determine preliminary information on building areas for costing purposes and to determine if and where soil testing is needed.

At this stage, costs may be estimated and initial budgets prepared.

Final Design

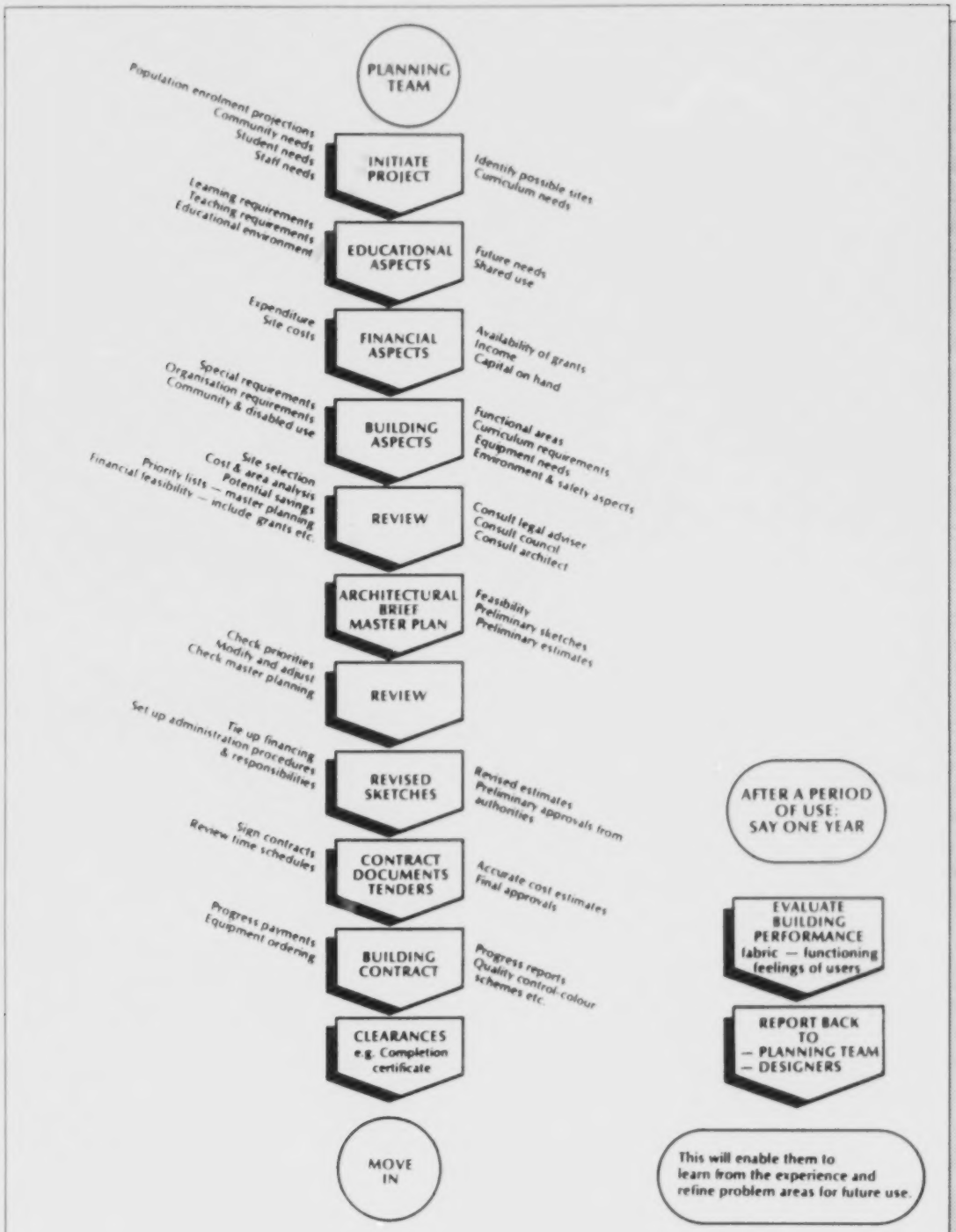
The final design may require several sequential designs culminating in one which can be endorsed by all.

- Contract Documents

By this stage a very clear understanding should exist of what is to be included in the school buildings and grounds. Nevertheless, the planning committee should check the contract documents or at least appoint someone to do this on their behalf.

The basis of this check will be the final brief. If the person checking has had a significant involvement in the planning committee this will be an added advantage. It is possible in a complex entity like a school to have overlooked matters. Reviewing the final contract documents (drawings and specification) will be useful in evaluating the design as an expression of the brief.

Review Process: The master plan has a limit to its effectiveness and thus needs regular updating. Previous plans and notes of meetings are invaluable if they show the previous planning processes. Key people in schools should review these plans about every 5 to 7 years..



Another way of illustrating the Planning and Building Process

From "Schools Design and Use - Commonwealth Schools Commission 1982

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1.7. Value Management (VM)

Value Management is a useful planning tool that can also bring together the necessary expertise available in the community at large.

1.7.1. Definition

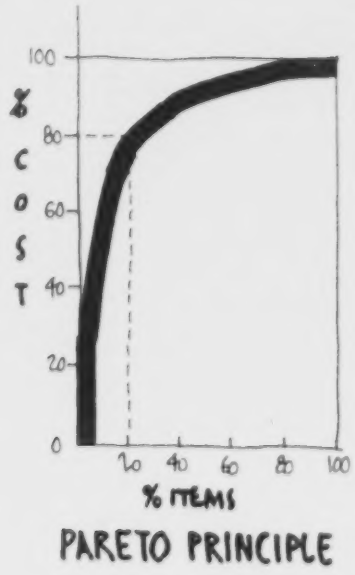
Value Management is a structured and systematic process for achieving the essential functions of a facility or system at the lowest possible cost consistent with required performance, i.e. to maximise value.

Underlying Value Management is the principle that there is always more than one way to achieve a desired function. Thorough and systematic examination of the alternatives will produce the most desirable outcome.

1.7.2. Purpose

The purpose of Value Management is to achieve among other things the following objectives:

- Cost benefits maximised
- Enhanced potential for a full and comprehensive brief
- Clarified design intent for users - no surprises



Diagrams and parts of the text are taken from the "Value Management Manual" published by the New South Wales Government, 1992

1.7.3. Pareto Principle

For any project, usually a relatively small number of items will contribute to the bulk of the cost. This phenomenon is called the Pareto Principle.

The Pareto Principle is particularly relevant to VM, given the time scale over which value studies are usually undertaken. By giving primary attention to the 20% of items which account for 80% of the cost, the VM investment return is optimised.

This is not to imply that other areas of potential value improvement should be ignored. Instead it reflects the VM premise of setting activity priorities based on value opportunity.

1.7.4. Value Management (VM) Team

The VM Team will comprise essentially two groups of people:

- people skilled in the VM process, some with expertise in the relevant field (in this case education and construction)
- key people from the planning team

Team Leader

The VM Team Leader will be a qualified VM professional with proven ability to create an environment for creative thinking and critical analysis.

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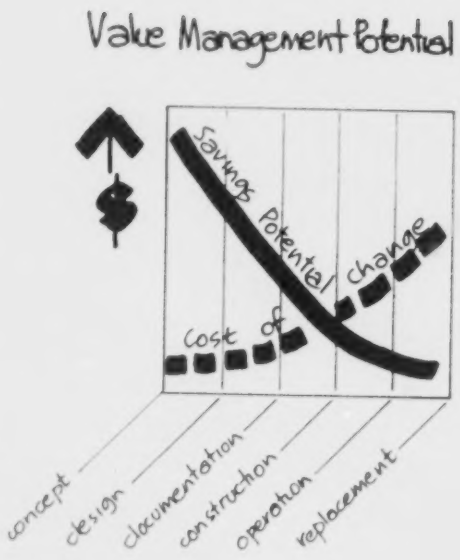
Team members

The team members will be those who are willing to give sufficient time for up to 2 days for sustained analysis and discussion. They should be open to debate and the challenging of ideas.

1.7.5. VM Outcomes

Value Management has been applied to a large number of NSW public sector projects, resulting in the following broad outcomes:

- project objectives have been tested against and aligned with corporate goals
- briefs have been analysed to separate "needs" from "wants"
- design solutions have been optimised
- communications have been improved between all parties involved in the projects, and
- a range of analysed alternatives has been presented for executive consideration and decision.



The output of a VM Team effort should be summarised in a report outlining all the issues canvassed, with recommendations for further study by the planning team.

The report should also contain an evaluation of the design including the effectiveness in the use of the resources available.

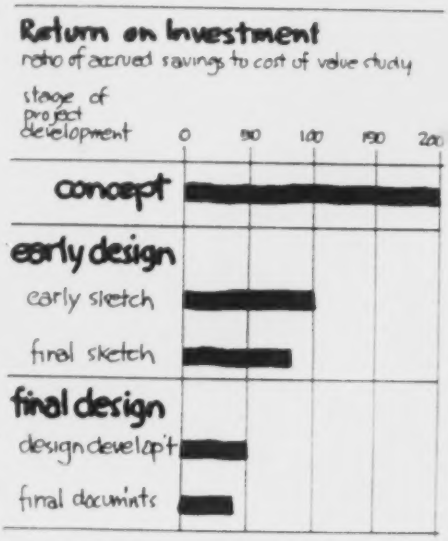
The process is of greatest value when the output is seriously considered by the principal authority for the school.

1.7.6. VM Investment return

The results of project based design value studies undertaken by one authority have exceeded expectations and projections:

- design based savings averaged 14%, while concept based savings often doubled this amount, and
- investment return varies depending on when the study takes place. At concept stage it can be as high as 200:1, at final design stag it can be around 14%. On average the return on investment (ROI) is around 50:1.

From this it can bee seen that the earlier Value Management is introduced, the greater the possible improvement in value.



1.7.7. VM Resources

There are a number of trained personnel operating now providing this expertise. The concept is being used significantly in Public Works projects in NSW. Industry is now taking hold of the concept.

There are also conferencing facilities being established to facilitate maximum involvement with minimum time input using computer technology.

List of personnel and related organisations will be found in Appendix 9.5

Diagrams and parts of the text are taken from the "Value Management Manual" published by the New South Wales Government 1992

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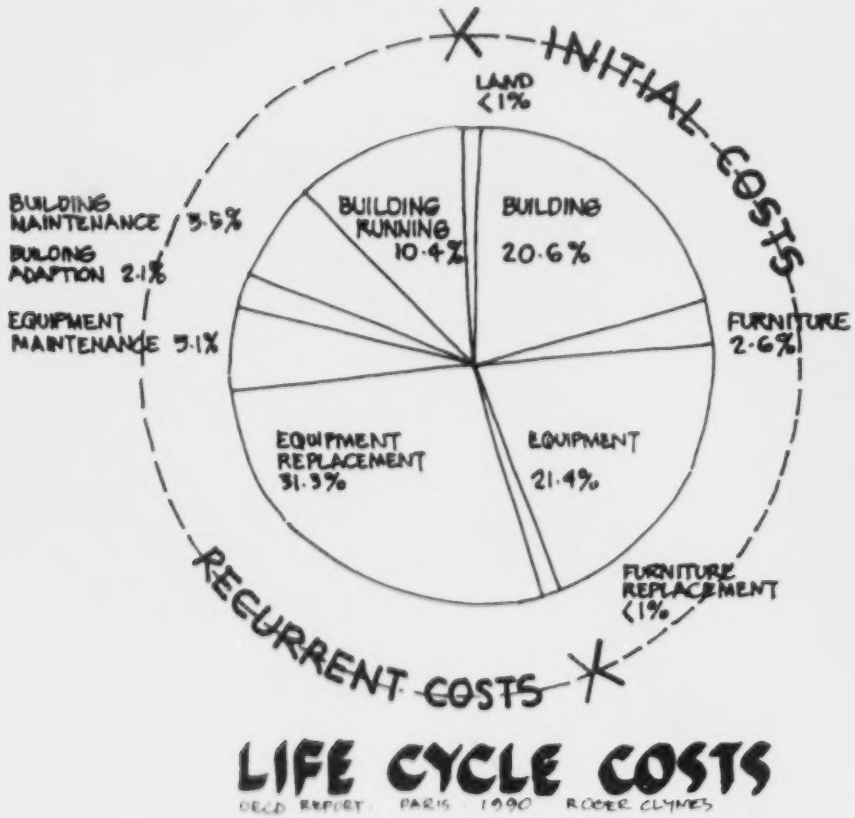
1.8. Life cycle costing

Allied with the concept of value management principles is life cycle costing, in which the total cost over the life of an installation is evaluated and compared with similar installations. By this technique it is possible to determine whether a building costing more but lasting longer is in fact a better investment. All manner of costs can be included, such as lease/interest costs, running costs, maintenance. The more facts included in the equation the more realistic the final outcome.

An OECD study of a University Science building showed that the cost of equipment and its replacement represented just over half the total cost of land, building, running and maintenance. This study is illustrated in the Life Cycle Costs diagram. When staff salaries were included the capital costs shrank to 14% of the total cost. If more money were spent on the building to minimise staffing costs, the additional expenditure could be more than offset by the overall cost savings.



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